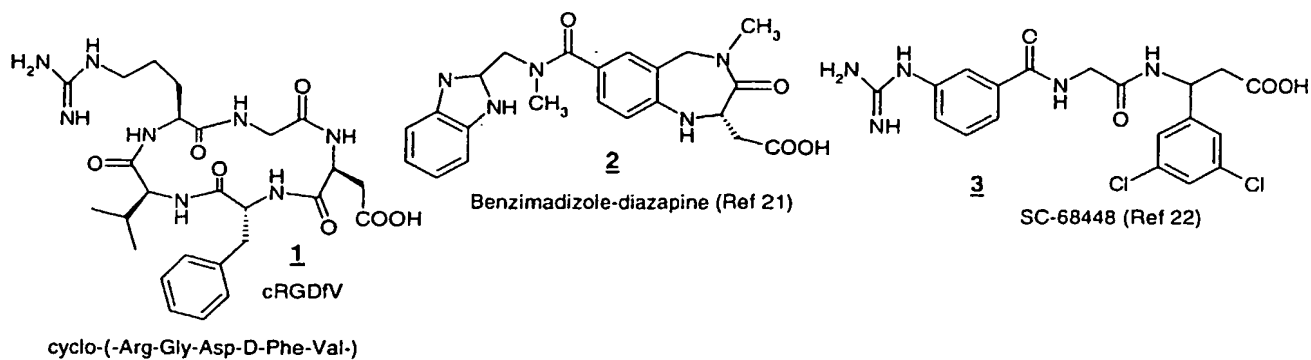
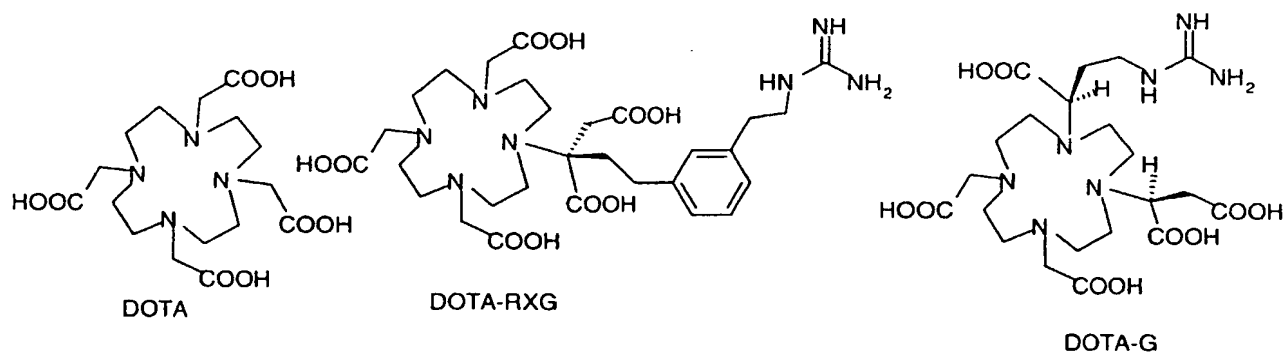
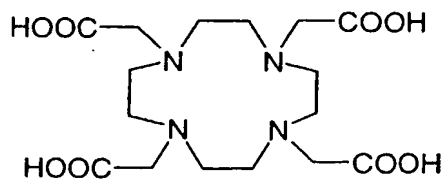
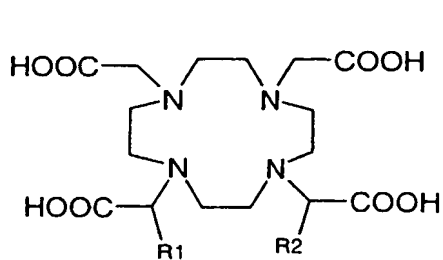
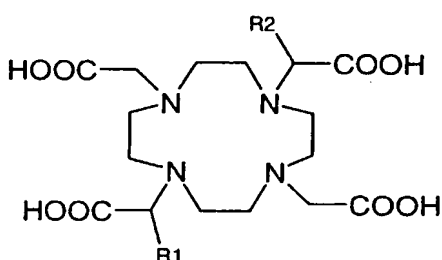
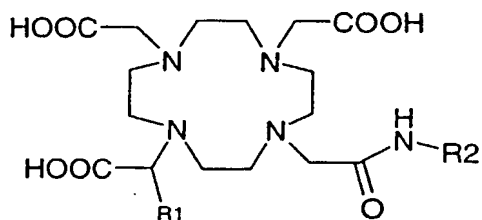
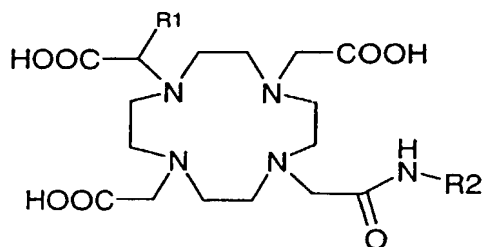


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**Fig. 1****Fig. 2**

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**DOTA****1,4-alpha substitution****1,7-alpha substitution****1,4-alpha substitution**  
**DO3A-Amides****1,7-alpha substitution**  
**DO3A-Amides****Fig. 3**

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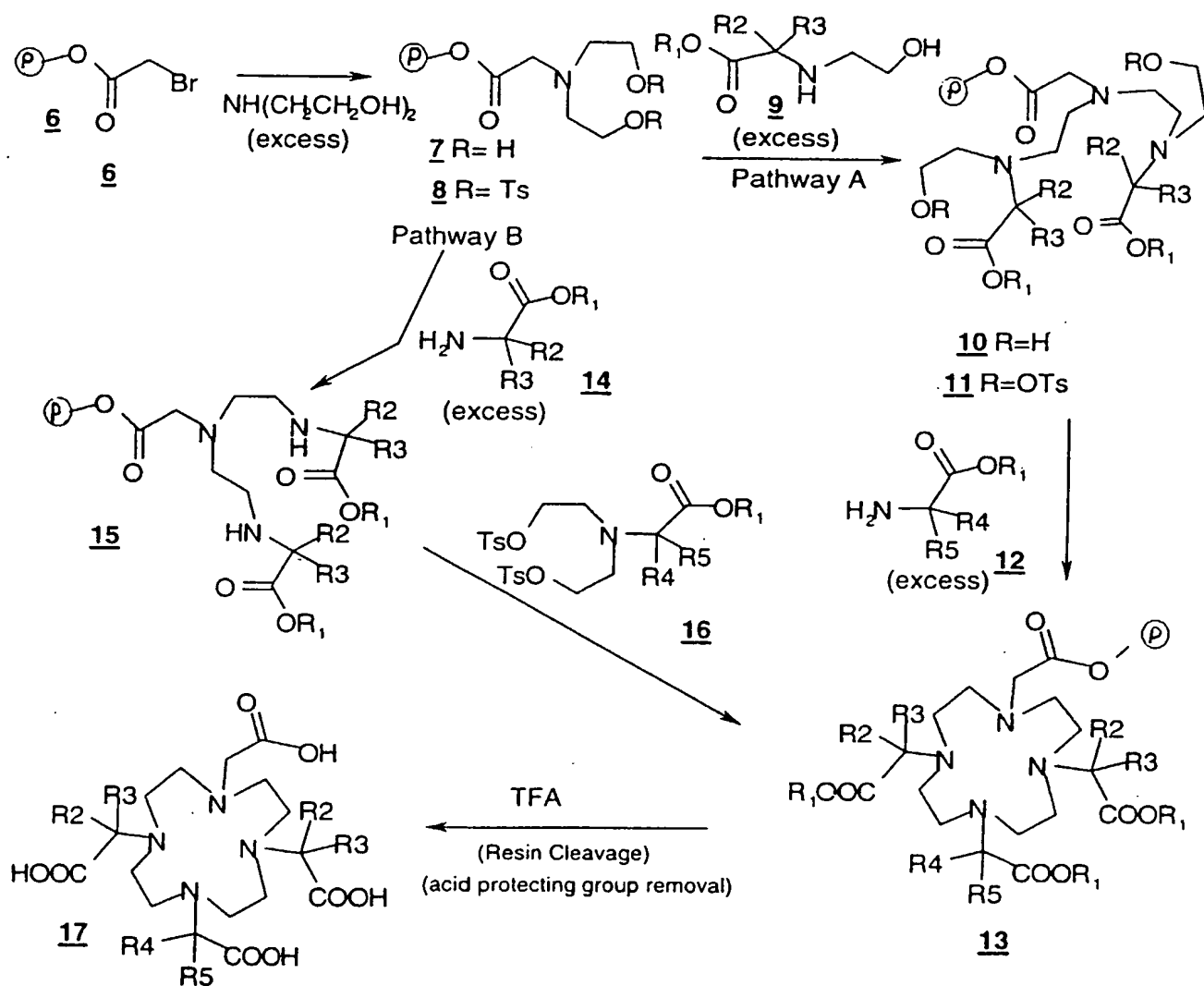
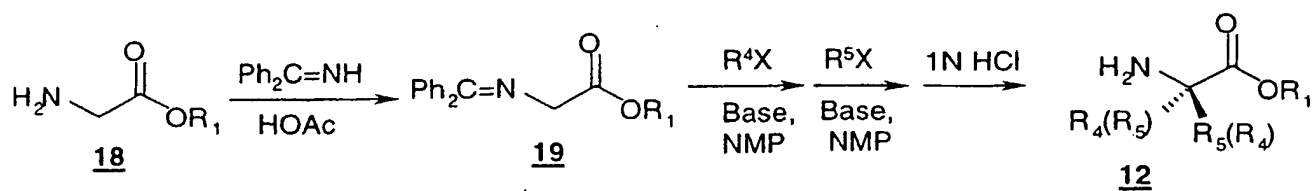
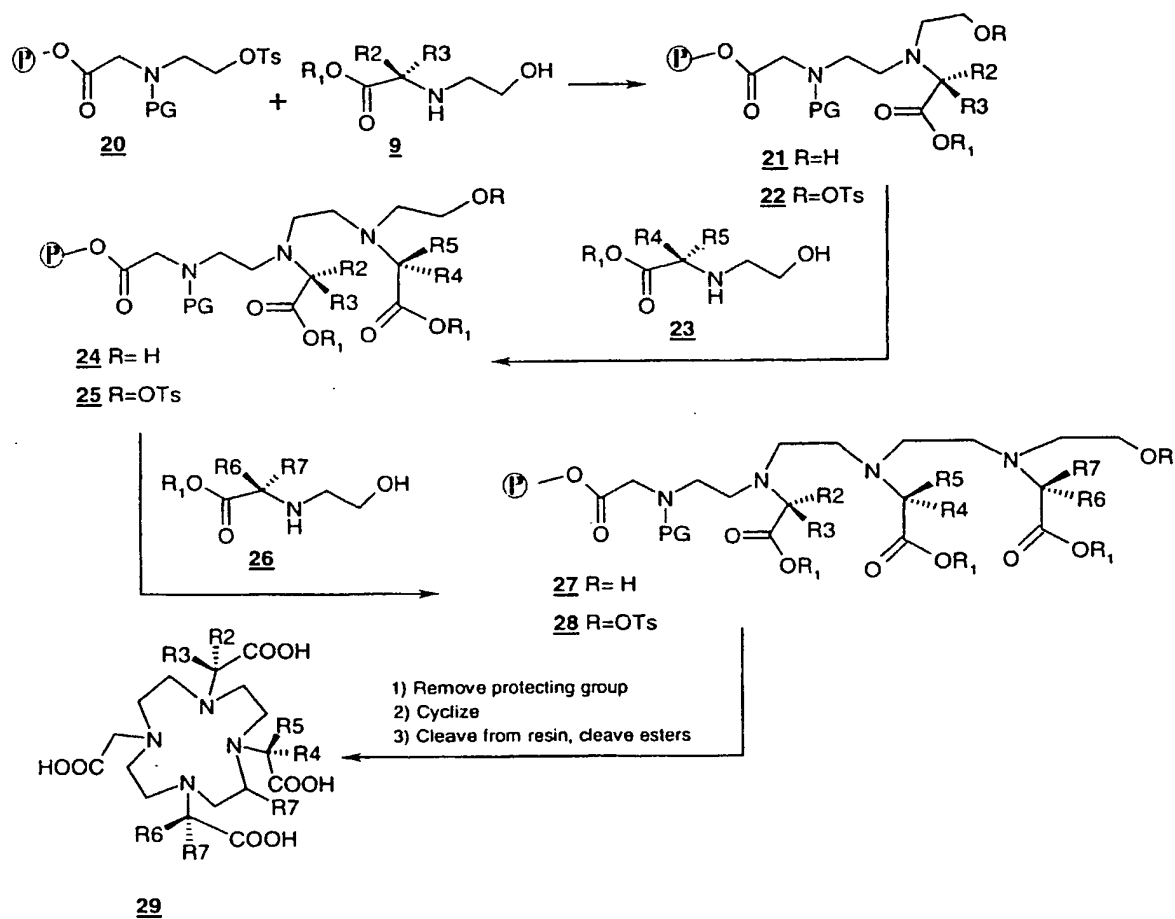
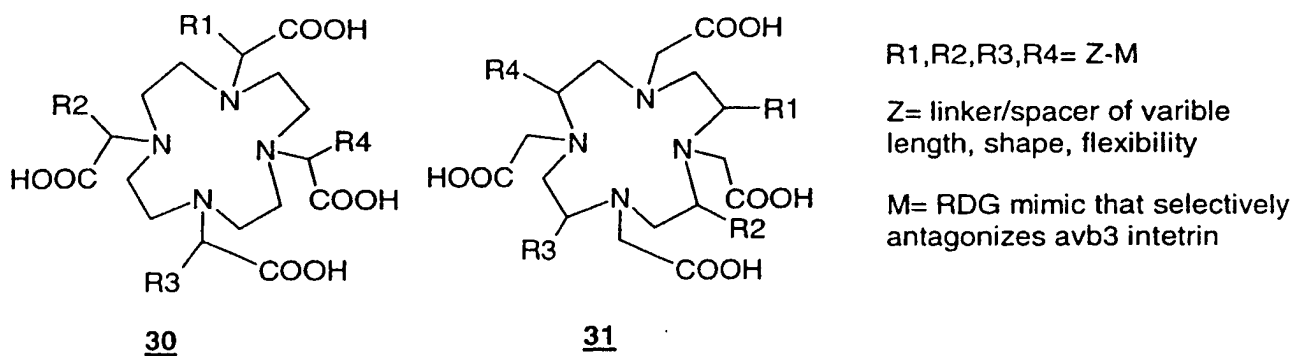
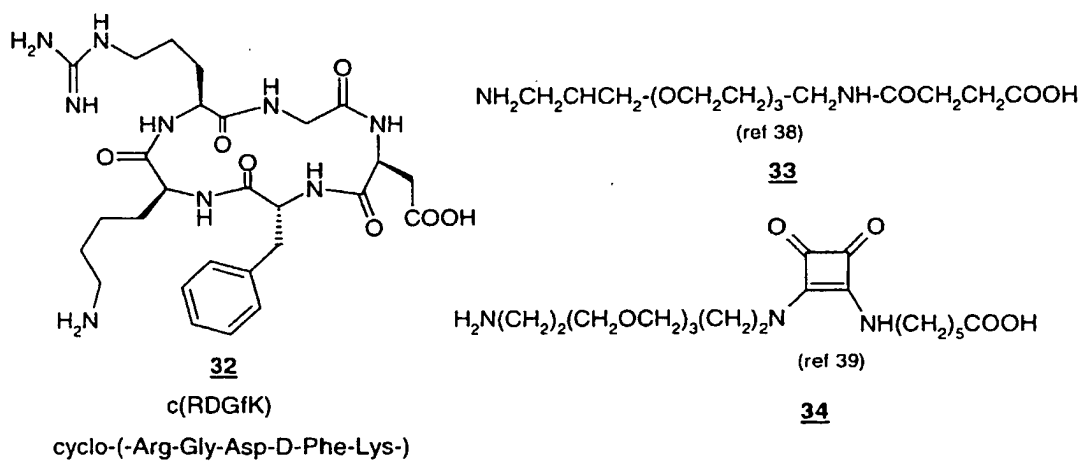


Fig. 4

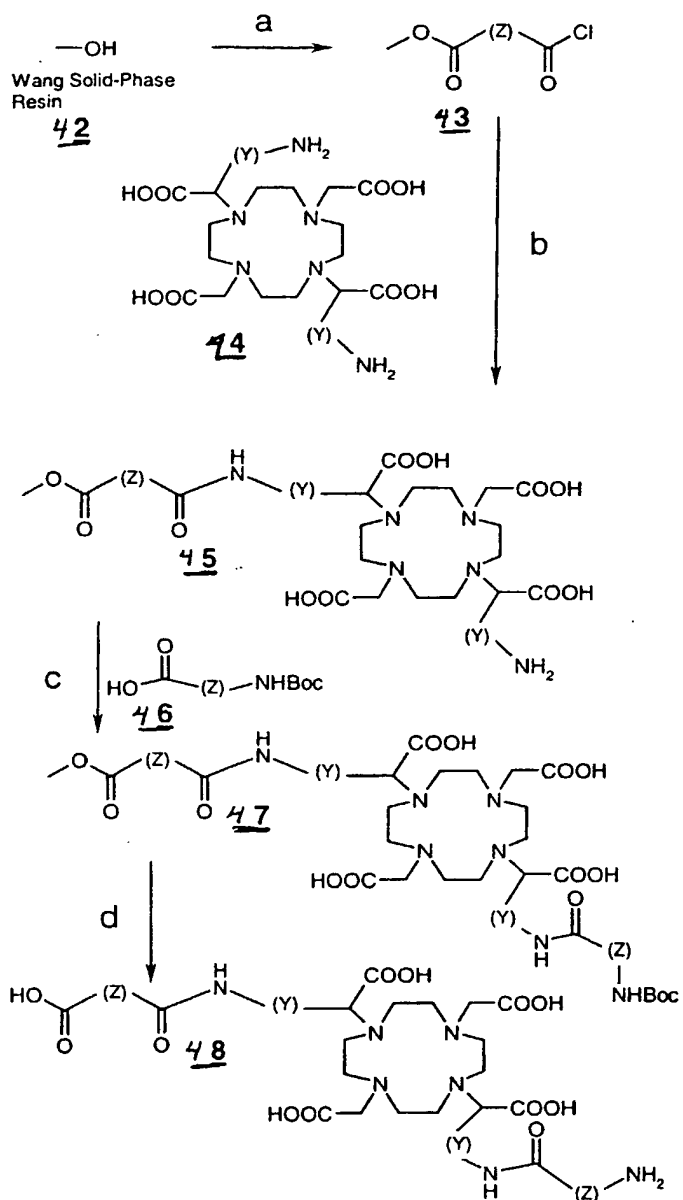
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**Fig. 5****Fig. 6**

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**Fig. 7****Fig. 8**

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a) symmetrical acid chloride, pyridine, CH<sub>2</sub>Cl<sub>2</sub>;b) DMF, Et<sub>3</sub>N;

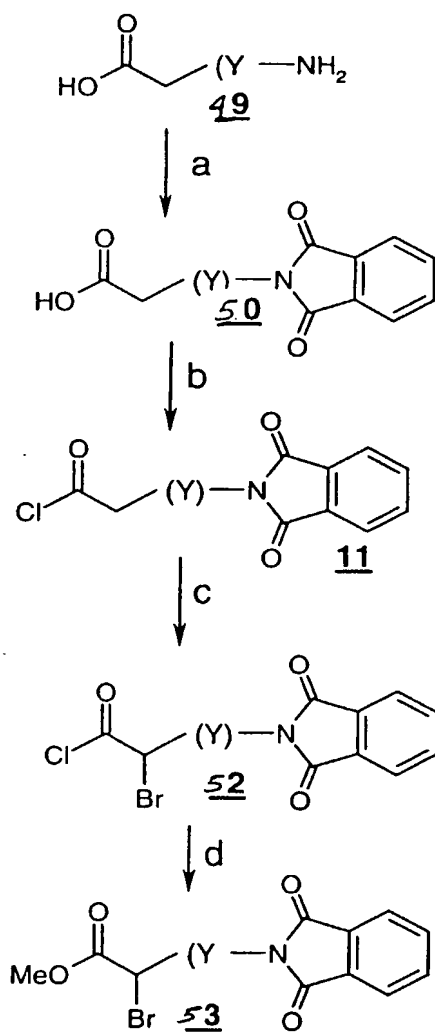
c) carbodiimide coupling or acid chloride;

d) Trifluoroacetic acid/CH<sub>2</sub>Cl<sub>2</sub> 50/50

(Y)= 1,2,4 methylene units

(Z)= variable spacer groups

**Fig. 9**



a) phthalic anhydride, toluene, reflux;  
b) thionyl chloride, toluene, reflux;  
c) N-Bromosuccinimide, CCl<sub>4</sub>, reflux;  
d) quench in MeOH  
(Y) = 1,2,4 methylene units

**Fig. 10**

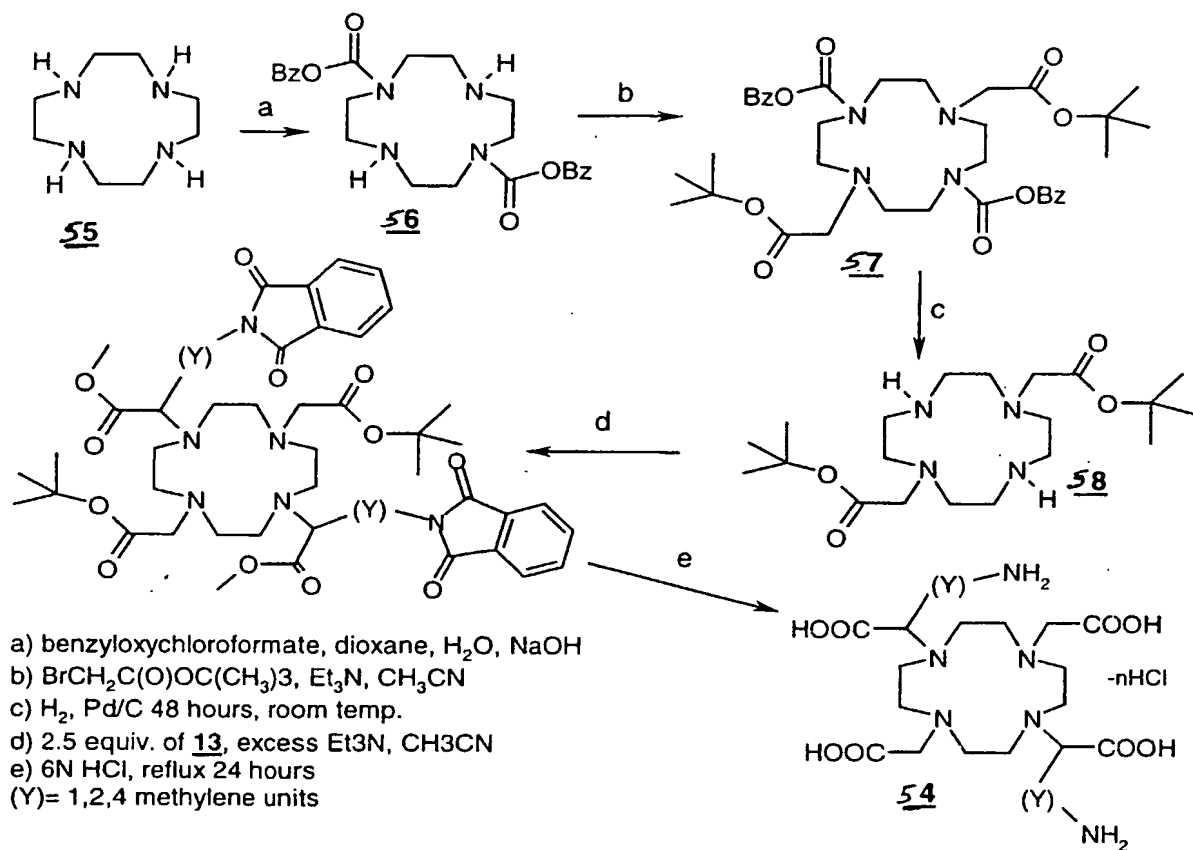


Fig. 11



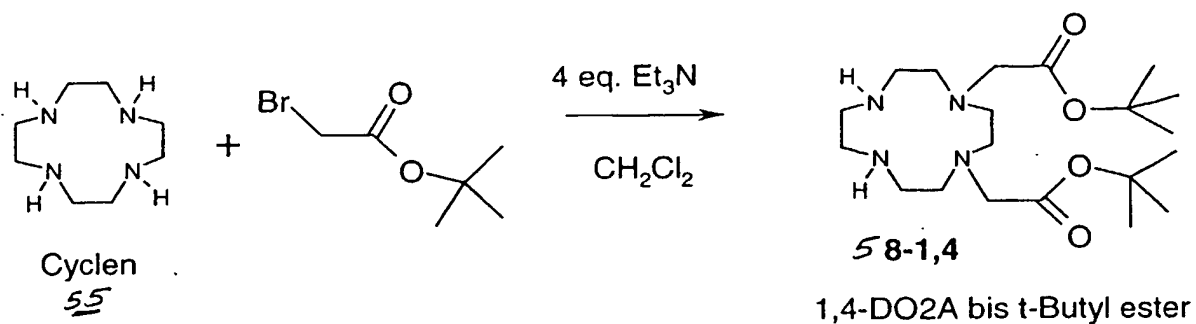


Fig. 12

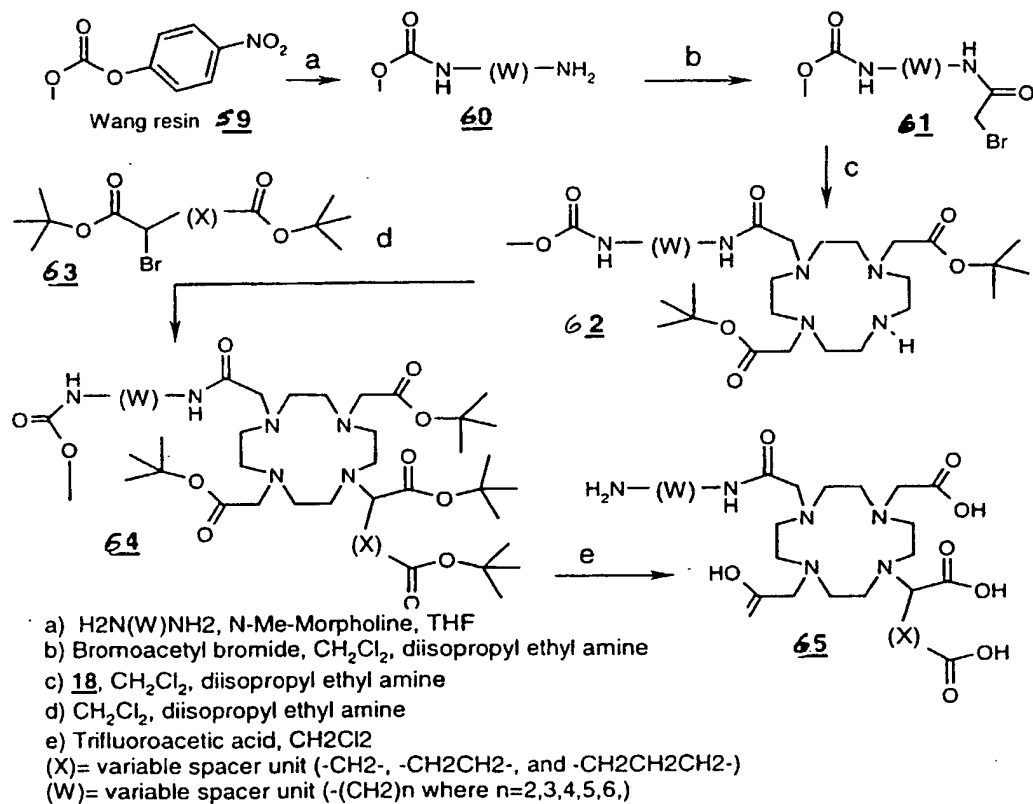
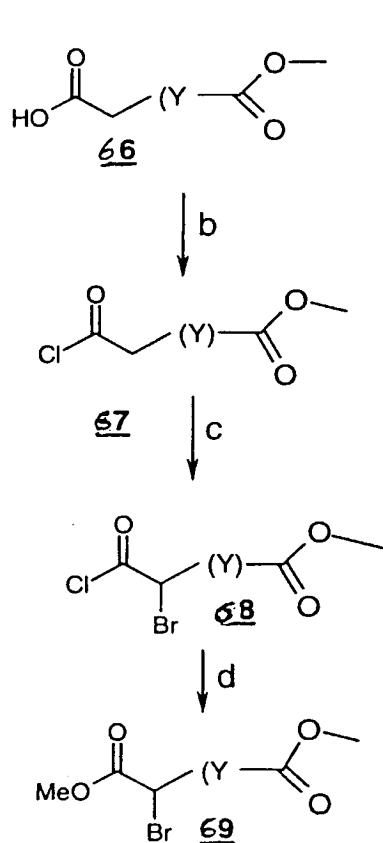
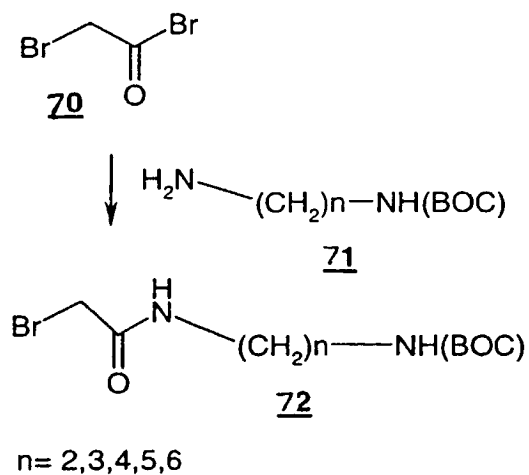
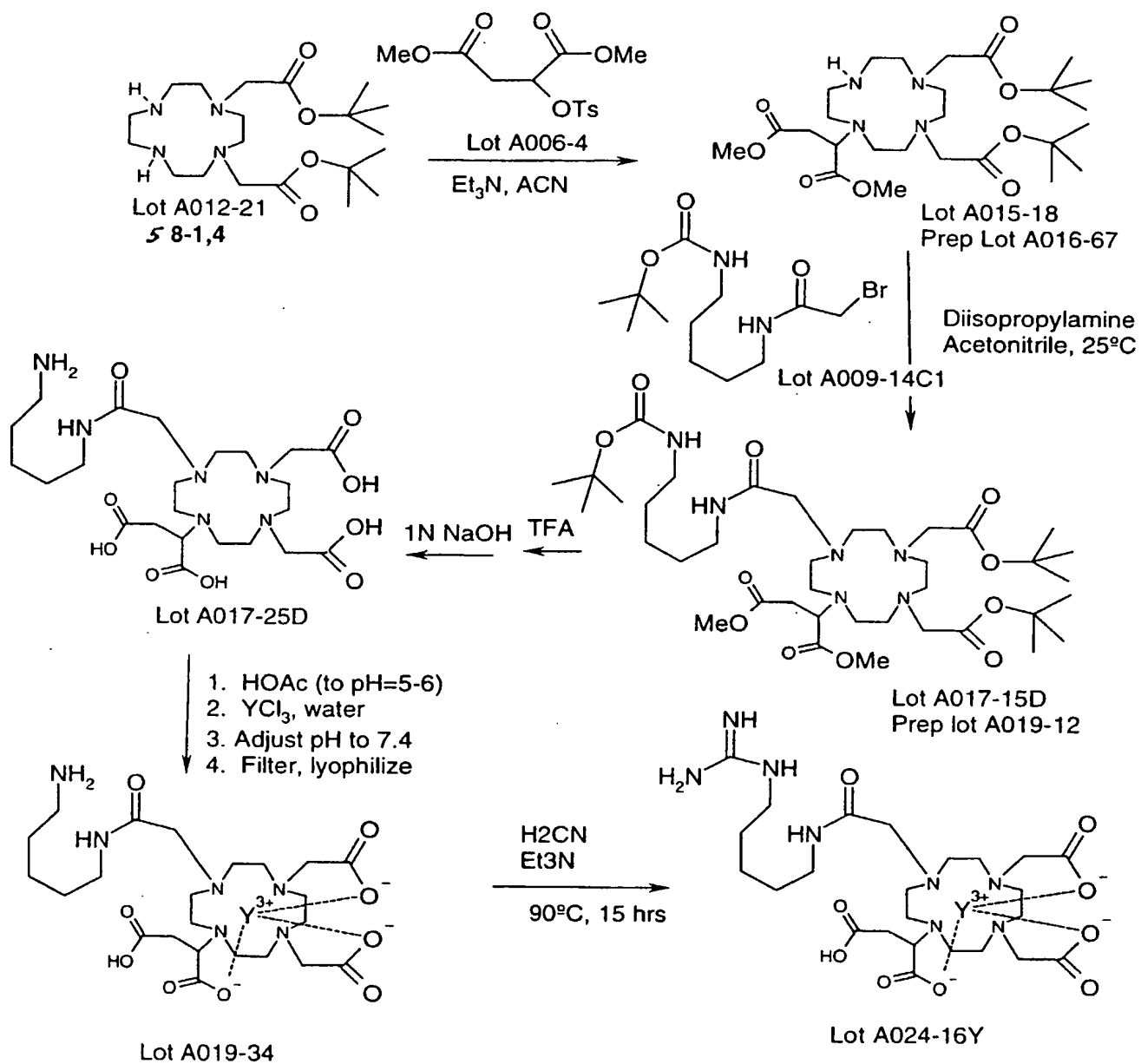
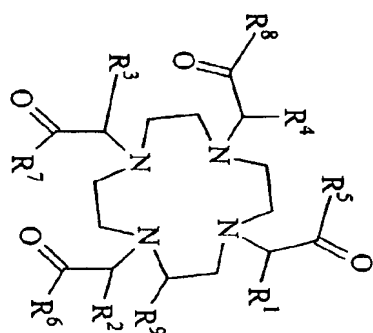


Fig. 13

**Fig. 14****Fig. 15**

**Fig. 16**



DOTA Based Species

DOTA Based Species	R <sup>1</sup>	R <sup>2</sup>	R <sup>3</sup>	R <sup>4</sup>	R <sup>5</sup>	R <sup>6</sup>	R <sup>7</sup>	R <sup>8</sup>	R <sup>9</sup>
AC11-65C	CO-B-CH <sub>3</sub>	H	H	H	OC <sub>2</sub> H <sub>5</sub>	OH	NH(CH <sub>2</sub> ) <sub>3</sub> NH <sub>2</sub>	-OH	H
A013-17	-(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>	-(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>	H	H	-OH	-OH	OH	-OH	H
A017-79J	-(CH <sub>2</sub> ) <sub>2</sub> G	-(CH <sub>2</sub> ) <sub>2</sub> G	H	H	-OH	-OH	-OH	-OH	H
A017-80D	-(CH <sub>2</sub> ) <sub>2</sub> G	H	-(CH <sub>2</sub> ) <sub>2</sub> G	H	-OH	-OH	-OH	-OH	H
A017-80K	-(CH <sub>2</sub> ) <sub>4</sub> G	H	-(CH <sub>2</sub> ) <sub>4</sub> G	H	-OH	-OH	-OH	-OH	H
A007-26	H	-(CH <sub>2</sub> ) <sub>2</sub> S	H	H	-NH(CH <sub>2</sub> ) <sub>6</sub> NH <sub>2</sub>	-OH	OH	-OH	H
A008-43	H	H	H	H	-OH	-OH	OH	-OH	-CH <sub>2</sub> -A-NH-(CH <sub>2</sub> ) <sub>2</sub> -NH <sub>2</sub>
A012-17	H	-(CH <sub>2</sub> ) <sub>2</sub> S	H	H	-NH(CH <sub>2</sub> ) <sub>5</sub> NH <sub>2</sub>	-OH	OH	-OH	H
A012-19	H	-(CH <sub>2</sub> ) <sub>2</sub> S	H	H	-NH(CH <sub>2</sub> ) <sub>4</sub> NH <sub>2</sub>	-OH	OH	-OH	H
AC11-75 (B-E)	H	-CH <sub>2</sub> CO <sub>2</sub> H	H	H	-NH(CH <sub>2</sub> ) <sub>n</sub> NH <sub>2</sub> n=3-6	-OH	OH	-OH	H
AC11-50 (A-D)	H	-CH <sub>2</sub> CO <sub>2</sub> H	H	H	-NH(CH <sub>2</sub> ) <sub>n</sub> G n=3-6	-OH	-OH	-OH	H
A011-21 (A-E)	-(CH <sub>2</sub> ) <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> NH <sub>2</sub> n=2-6	OH	-OH	H
A011-25 (A-E)	-CH <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> NH <sub>2</sub> n=2-6	OH	-OH	H
A011-16 (Q-U)	-(CH <sub>2</sub> ) <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> G n=2-6	OH	-OH	H
A011-16 (V-Z)	-CH <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> G n=2-6	OH	-OH	H

Fig. 17

DOTA Based Species	R <sup>1</sup>	R <sup>2</sup>	R <sup>3</sup>	R <sup>4</sup>	R <sup>5</sup>	R <sup>6</sup>	R <sup>7</sup>	R <sup>8</sup>	R <sup>9</sup>
A011-97 (A-E)	-(CH <sub>2</sub> ) <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-OH	NH(CH <sub>2</sub> ) <sub>n</sub> NH <sub>2</sub> n = 2-6	-OH	H
A011-97 F	-CH <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-OH	NH(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>	-OH	H
A013-67 (A-E)	-(CH <sub>2</sub> ) <sub>3</sub> -CO <sub>2</sub> H	H	H	H	-OH	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> NH <sub>2</sub> n = 2-6	-OH	H
A017-79 (E-H)	-(CH <sub>2</sub> ) <sub>2</sub> CO <sub>2</sub> H	H	H	H	-OH	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> -G n = 2-6	-OH	H
A016-46	-(CH <sub>2</sub> ) <sub>3</sub> CO <sub>2</sub> H	H	H	H	-OH	-OH	-NH(CH <sub>2</sub> ) <sub>2</sub> -NH <sub>2</sub>	-OH	H
A024-16 (M-P)	-(CH <sub>2</sub> ) <sub>3</sub> CO <sub>2</sub> H	H	H	H	-OH	-OH	-NH(CH <sub>2</sub> ) <sub>n</sub> -G n = 3-6	-OH	H
A013-77	-(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>	H	-(CH <sub>2</sub> ) <sub>3</sub> CO <sub>2</sub> H	H	-OH	-OH	OH	-OH	H
A013-79	-(CH <sub>2</sub> ) <sub>4</sub> NH <sub>2</sub>	H	-(CH <sub>2</sub> ) <sub>3</sub> CO <sub>2</sub> H	H	-OH	-OH	OH	-OH	H
A008-59	H	-(CH <sub>2</sub> ) <sub>2</sub> -NH <sub>2</sub>	H	-(CH <sub>2</sub> ) <sub>2</sub> -NH <sub>2</sub>	-OH	-OH	OH	-OH	H
A011-35	(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>	(CH <sub>2</sub> ) <sub>2</sub> -NH <sub>2</sub>	H	H	-OH	-OH	-OH	-OH	H
A017-79D	-(CH <sub>2</sub> ) <sub>2</sub> -G	H	-(CH <sub>2</sub> ) <sub>2</sub> -G	H	-OH	-OH	OH	-OH	H
A013-19	-(CH <sub>2</sub> ) <sub>4</sub> -NH <sub>2</sub>	H	-(CH <sub>2</sub> ) <sub>4</sub> -NH <sub>2</sub>	H	-OH	-OH	OH	-OH	H
A017-79 (B-C)	H	H	H	H	-OH	-OH	OH	-OH	ANH(CH <sub>2</sub> ) <sub>n</sub> -G n = 2, 4
A008-43	H	H	H	H	-OH	-OH	-OH	-OH	ANH(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>
A007-29	H	H	H	H	-OH	-OH	OH	-OH	ANH(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>

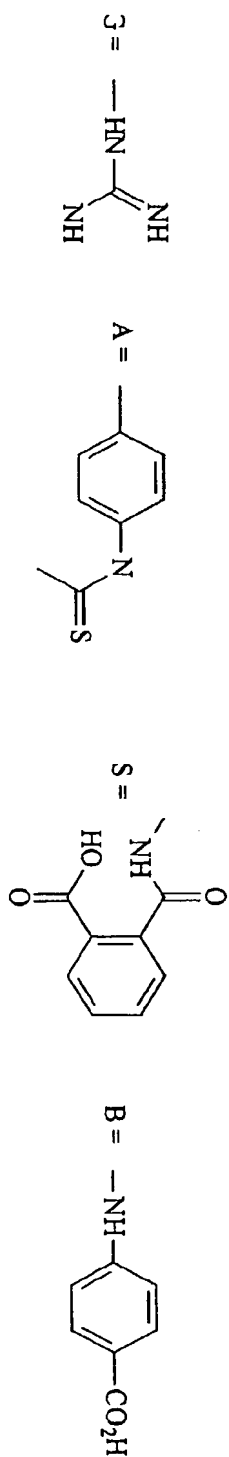


Fig. 17